AMENDMENTS TO THE CLAIMS

This following is a listing of claims pending in the instant application:

CLAIMS

1. (Currently Amended) A method of generating a preamble in a ~~OFDM~~ Orthogonal Frequency Division Multiplexing (OFDM) communication system, comprises the steps of:

~~inverse Fast Fourier-transforming~~ Inverse Fast Fourier Transforming (IFFT) polyphase code sequences whose number is the same as half of an IFFT size using Hermitian symmetry;

replicating output signals from the transforming step for a predetermined number of times to provide replicated signals; [[and]]

placing the replicated signals in serial;

convolving a received signal with a polyphase code sequence which is same as a transmitted polyphase code sequence; and

maintaining the convolving step until a predetermined number of peaks equal to the predetermined number are found, wherein a threshold for deciding whether a peak is found is a number which is a magnitude of a first peak times a constant that is a number between 0.7 and 1.0.

2. (Original) The method of claim 1, wherein the predetermined number of times is 4.

3. (Currently Amended) The method of claim 2, wherein the preamble is further used for synchronization by performing the steps comprising:

~~convolving a received signal with a polyphase code sequence which is same as a transmitted polyphase code sequence; and~~

maintaining the convolving step until four peaks are found.

4. (Previously Presented) The method of claim 3, wherein if the four peaks are found, the synchronization is done successfully.

5. (Previously Presented) The method of claim 3, wherein synchronization is unsuccessful if the four peaks are not found.

6. (Cancelled) The method of claim 4, wherein a threshold for deciding whether a peak is found is a number which is a magnitude of a first peak times a constant that is a number between 0.7 and 1.0.

7. (Currently Amended) The method of claim 1, wherein the preamble is used for channel estimation comprising the steps of:

taking samples of an IFFT size in advance from a subsequent sample of a sample of each peak;

generating four sample blocks;

Fourier-transforming each of the four sample block to provide Fourier-transformed signals;

taking the Fourier-transformed signals from a first output to an output signal having half of a~~n FFT~~ Fast Fourier Transforming (FFT) size;

squaring each of the output signals having the half of the FFT size for calculating magnitudes of the signals;

averaging each of the output signals which are in the same position in the output from the FFT; and

dividing each average of the output signals by a respective magnitude of the polyphase code sequence transmitted originally.

8. (Currently Amended) A method of generating a training packet for a signal-to-noise ratio calculation and bit loading, comprising the steps of:

using polyphase code sequences whose number is same as the half of an ~~IFFT~~ Inverse Fast Fourier Transforming (IFFT) size;

~~inverse-Fourier-transforming~~ Inverse Fast Fourier Transforming the polyphase code sequence using Hermitian symmetry and IFFT;

replicating output signals of the IFFT six times; [[and]]

placing replicated signals in serial;

convolving a received signal with a polyphase code sequence which is same as a transmitted polyphase code sequence; and

maintaining the convolving step until a predetermined number of peaks are found, wherein a threshold for deciding whether a peak is found is a number which is a magnitude of a first peak times a constant that is a number between 0.7 and 1.0.

9. (Original) The method of claim 8, wherein the method further comprises the step of synchronizing using the training packet.

10. (Currently Amended) A method of calculating a signal-to-noise ratio using polyphase code sequences whose number is the same as a half of an ~~IFFT~~ Inverse Fast Fourier Transforming (IFFT) size, comprising the steps at a processor of:

taking samples of an IFFT size in advance from a subsequent sample of a sample of each peak;

generating six sample blocks;

Fourier-transforming each block to provide Fourier-transformed signals;

taking the Fourier-transformed signals from a first output to an output signal having half of a~~n~~ ~~FFT~~ Fast Fourier Transforming (FFT) size; and

calculating the signal-to-noise ratio for each sub-carrier with six signals from six Fourier-transformed blocks for a same sub-carrier in the processor.

11. (Original) The method of claim 10, wherein the method further comprises the step of smoothing a signal-to-noise ratio distribution by convolving the signal-to-noise ratio distribution with 7 sample points of a normal distribution.

12. (Original) The method of claim 11, wherein the method further comprises the step of bit allocating by selecting a modulation type for each sub-carrier according to the signal-to-noise ratio distribution.

13. (Original) The method of claim 10, wherein the method further comprises the step of generating a bitmap and storing the bitmap.

14. (Original) The method of claim 13, wherein the method further comprises the step of transmitting the bitmap.